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DOI:

[10.1111/add.13584](https://doi.org/10.1111/add.13584)

*Document Version*

Early version, also known as pre-print

[Link to publication record in King's Research Portal](#)

*Citation for published version (APA):*

Hall, W., & Weier, M. (2016). Lee Robins' studies of heroin use among US Vietnam veterans: Robins' heroin studies of Vietnam veterans. *Addiction*. <https://doi.org/10.1111/add.13584>

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**Addiction classics:**

**Lee Robins' study of heroin use among US Vietnam Veterans**

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Word count: 2,380 text; 3127 with references

Research by Lee Robins and colleagues on heroin use among US enlisted men who served in Vietnam is widely cited (papers [1-7] have Google Scholar and Web of Science citation counts of 1400 and 433, respectively). This paper describes how the Robins study came to be done, how it was designed, what its main findings were, how they were received, and briefly considers its contemporary relevance to drug policy.

### **How did the Robins study come to be done?**

Crimes attributed to heroin addicted persons became a major public concern in the large cities in the Eastern USA in the late 1960s and early 1970s [8-12]. In 1971, President Richard Nixon expressed his concern that the domestic heroin problem would be greatly increased after an army of heroin addicted Vietnam veterans returned to the USA [12-14]. His concern was prompted by a report by two Congressmen who visited Vietnam in 1971 claiming that 10-15% of servicemen were addicted to heroin [15]. This report which appeared when the USA was withdrawing 200,000 troops from Vietnam [12,13,16] raised the fear that a returning army of “addicted veterans” would overwhelm the US addiction treatment system and resort to crime to maintain their heroin addiction [1,12].

In June 1971, President Nixon created a new executive agency, the Special Action Office for Drug Abuse Prevention, and appointed Jerome Jaffe as the nation’s first “drug czar” to advise him on how to respond to heroin use among Vietnam veterans [12,13]. Jaffe’s appointment to this newly created agency took place just before the first US National Household Survey on Drug Abuse (1972), the establishment of the National Institute on Drug Abuse (1974), and the first Monitoring the Future survey of US high school seniors (1975). Jaffe proposed that the military screen the urine of all servicemen for opiates before they returned to the USA. Any soldier who provided an opiate-positive urine would have to undergo detoxification that would delay their return to the USA by 2 weeks, but would not otherwise be punished [12,13]. Jaffe’s aims were: to obtain better data on the prevalence of opiate use in Vietnam; to provide a swift and certain but modest punishment that would deter men from using opiates before their departure; and to encourage soldiers to break their heroin habits before they returned home [13]. Nixon ensured that Jaffe had the necessary resources and political authority to implement the policy [12,16].

Jaffe also commissioned a follow up study of heroin use among a sample of these men while in Vietnam and after they returned to the USA. He recruited Lee Robins to conduct the study as she had previously carried out two longitudinal studies of antisocial behavior and drug use

in American youth, including a study of heroin use among inner city African-American males [17].

### **The study design**

Robins and colleagues selected a random sample of 450 enlisted men who returned to the USA in September 1971. They also obtained a sample of 450 men who screened positive for opiates in the same month [1]. These men were interviewed 8-12 months after their return to the USA about their drug use before, during and after their service in Vietnam. The interviewers also requested a urine sample at the end of the interview. The researchers interviewed 95% of the sample and obtained a urine sample from 92% [1,4,6]. Robins and colleagues were also able to access army records to validate self-reported drug use and disciplinary offences in the military. Despite some discrepancies, there was generally good agreement between urinalysis results and self-reported drug use [3].

Robins and colleagues later conducted a 3 year follow up of a subset of the random sample along with a matched control group of draft-eligible men of the same age who had not gone to Vietnam [7,18,19]. The second study was designed to assess how drug use in veterans compared to age peers who did not go to Vietnam, and how the drug use of the veterans had changed in the 3 years since they had served in Vietnam.

### **What did Robins find?**

#### *Heroin use in Vietnam*

Just under half (43%) of the random sample of veterans reported opiate use in Vietnam in the year before the study (38% used opium and 34% heroin) [1]. Heroin was of high purity and very cheap so it was most often smoked in a cigarette (67%), or sniffed (24%) rather than injected (9%). Around 20% (46% of those who used an opiate in Vietnam) used heroin often enough and for long enough to experience symptoms of opiate withdrawal (e.g. sweats, irritability, trouble sleeping) for two days or more [1]. Injecting heroin use was most common among those men who used at least weekly for 9 months or more (40%). The men said that they used heroin to get high and to deal with the irritations of military life such as boredom, homesickness and disturbed sleep [1]. Heroin was generally used when men were behind the lines or on leave rather than in the field [20], so most used heroin less than daily [1].

#### *Heroin use after Vietnam*

The most surprising finding was the very low rate of heroin addiction reported by veterans in the 8-12 months after their return to the USA. Only 10% reported any heroin use, 2% reported using heroin more than weekly for more than a month, and just under 1% reported becoming re-addicted (a rate confirmed by urinalysis). This remained the case in the subsequent 2 years: only 2% were re-addicted at follow up (although 5% had been addicted at some point in three years) (see Table 1).

*Table 1 about here*

Robins asked why the veterans had not used heroin. It was not for lack of opportunity: most veterans reported that heroin was easy to get where they lived and a tenth had tried heroin after they returned. The main reasons for not using were a fear of becoming addicted, experiencing adverse health effects, being arrested, and the strong disapproval of friends and family [1].

The men most likely to become addicted to heroin in Vietnam were those who had used opiates (usually cough syrups containing codeine) before serving in Vietnam. Opiate use was most common among men who had grown up in large US cities, were less well educated and had family histories of drug use, crime and delinquency [1,3,21]. These characteristics had predicted heroin use in Robins' US cohort studies [3]. Those most likely to use heroin after Vietnam were those with a history of opiate use and heavy use of other illicit drugs preceding Vietnam, and regular heroin use, especially by injection, and regular use of amphetamines and barbiturates in Vietnam [1,3].

#### *Other drug use in and after Vietnam*

The focus on heroin use obscured findings on the use of alcohol, amphetamines, barbiturates and cannabis during and after Vietnam service. Cannabis was the most commonly used illicit drug in Vietnam, followed by amphetamines and barbiturates. Heroin users were heavy users of all these drugs. In contrast to heroin, the use of these drugs continued at similar rates after Vietnam (see Table 2).

*Table 2 about here*

The pattern of alcohol use changed in interesting ways that probably reflected changes in its availability (see Table 3). Around one in four veterans reported heavy, symptomatic drinking before Vietnam but this proportion declined to one in six in Vietnam. While in Vietnam,

heavy drinkers were less likely to use heroin and heroin users tended to be light drinkers [22]. After the veterans' return to the USA, heavy drinking and alcohol-related problems increased as heroin use declined and heavy drinking increased among veterans who had used heroin in Vietnam [22,23] (see Table 4).

*Table 3 about here*

*How were these findings received?*

The study findings were initially greeted with disbelief because they conflicted with media portrayals of Vietnam veterans as an “Addicted Army” [13,15]. They also clashed with the dominant clinical view that heroin addiction was a chronic and intractable disorder. The latter view was derived from follow up studies in the USA which showed that more than 90% of treated heroin addicts relapsed to heroin use within a year [24]. Some initial claims that the study was a cover up were disarmed by Robins' explanation of the validity and integrity of the study and the failure of an investigative journalist to find any evidence of fraud [3]. The findings were also supported by smaller surveys of drug use among servicemen in Vietnam [e.g.20].

### **Robins' study in retrospect**

In 1993 Robins [3] lamented that her findings were often dismissed as peculiar to a unique cohort of young American men who had been placed in an atypical social and historical situation that would never be replicated. One can concede that the Robins' cohort was unique but still recognize its relevance to drug policy. The high rates of heroin use and addiction among US soldiers in Vietnam and the low rates on their return to the USA can be readily explained by the extreme differences in the price, purity, availability and social acceptability of heroin use between Vietnam and the USA [25].

Heroin use was common in Vietnam because heroin of high purity and low price was readily available. It was easily smoked and so did not need to be injected, overcoming a major barrier to initiating heroin use. A large group of young men, aged 19 to 20, were exposed to heroin at a time when a deeply divisive war was winding down, and many soldiers rejected the authority of the military and expressed a wish not to be “the last soldier killed” [26]. Access to alcohol was limited because these men were under the USA minimum legal drinking age of 21 and the Army only allowed enlisted men to drink beer [23].

This was the perfect combination of circumstances to increase heroin use. Even so, most heroin users in Vietnam did not use daily, very few used by injection, and most used for less than 12 months. Their heroin smoking careers were therefore much shorter and less intense than the careers of heroin injectors in the USA among whom rates of addiction and relapse were much higher.

The veterans' situation after their return to the USA differed in all these important respects. Heroin was available but purity was less than 10% in the USA as against 90% in Vietnam. Its price was much higher in the USA, namely, \$20 for a street bag of 10% purity [27] as against \$6 a day in Vietnam for pure heroin. Injection was the most efficient way to use heroin in the USA. This was the least popular route in Vietnam and the route used by veterans who tried heroin after their return. The 90% of returning veterans who did not use heroin said that they were fearful of becoming addicted, being arrested or experiencing serious adverse health effects [1,7].

In these circumstances, it is not surprising that the men who became re-addicted after their return had used opiates and other illicit drugs before going to Vietnam, and had injected heroin in Vietnam [3,21]. The very small proportion of the re-addicted veterans who sought treatment had the same high rates of relapse as heroin addicts treated in Lexington, Kentucky [3,28].

The importance of the role of high price, lower availability and stronger social disapproval is suggested by the veterans' use of illicit drugs other than heroin after their return. Cannabis was used at high rates after the men returned because it was widely available, and not as socially disapproved of as heroin use because most young US adults had used cannabis by the mid-1970s [29].

Heavy and problematic alcohol use was the other noteworthy pattern of drug use among returning Vietnam veterans. Three years after their return alcohol abuse was a major problem for over a third of veterans, especially among those who had used heroin in Vietnam [22,23] (see Table 4). It appeared that some heavy drinkers who used heroin rather than alcohol in Vietnam reverted to heavy alcohol use after they returned [23].

*Table 4 about here*

Robins [2] argued that all epidemiological studies of drug use are creatures of the unique historical context in which they were done. Such studies recruit drug users from certain

demographic groups and their subjects' drug use reflects what drugs were available at what price and purity, the favoured routes of administration, and the social attitudes towards their use among peers and the broader community. She described her Vietnam study as a 'natural experiment' that provided "an opportunity to learn what happens when first exposure to heroin occurs in a foreign and for many a frightening setting, without the deterrents of high prices, impure drugs, or the presence of a disapproving family" [1]. The social environment to which they abruptly returned was one where heroin was far less available, impure and more expensive, where injection was the norm, and where heroin use attracted penal sanctions and strong social disapproval from family and friends [9,27,30].

These historically unique circumstances of the Vietnam study represented a striking counterfactual to the circumstances under which heroin was used under prohibition in the USA. In the USA, the persons who were most likely to use heroin were those who in Robins' study were the most likely to become addicted in Vietnam, namely, less well educated, socially disadvantaged youth who lived in large cities and came from families with a history of antisocial behavior, including drug use.

Robins' study is not a unique historical curiosity. There are other historical cases in which a population of young adults had been exposed to a large increase in the supply of very cheap and pure heroin that could be smoked. This happened in Australia in the early 1990s when heroin use spread beyond its more traditional social ecological niche of socially disadvantaged youth into the middle classes [31]. An Australian heroin epidemic in the 1990s was terminated by an abrupt reduction in heroin supply at the end of 2000, the causes of which remain a matter for debate [32,33].



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Table 1. Heroin and other opiate use in Robins Vietnam cohort [1,4,6]

	Pre-Vietnam (%)	In Vietnam (%)	Post-Vietnam (%)	Comparison Lifetime Prevalence <sup>a</sup>
Any opiate	11	43	10	9
Any heroin	2	34	7	2
Regular use	1	27	4	0.5
Addicted	0.5	20	1	NA
Urine + ive	NA	10.5	1	NA

<sup>a</sup>Based on Monitoring the Future Survey Class of 1975 [34]

Table 2 Other illicit drug use in Vietnam [1,4,6]

	Pre-Vietnam (%)	In Vietnam (%)	Post-Vietnam (%)	Comparison Lifetime Prevalence <sup>a</sup>
Amphetamines	24	25	19	22
Marijuana	41	69	45	47
Barbiturates	14	23	12	18

<sup>a</sup>Based on Monitoring the Future Survey Class of 1975 [34]

Table 3. Alcohol use [22]

	Pre-Vietnam (%)	In Vietnam (%)	Post-Vietnam (%)
Light <sup>a</sup>	58	61	46
Regular <sup>b</sup>	16	23	16
Symptomatic <sup>c</sup>	22	13	30
Alcoholic <sup>d</sup>	4	2	8

<sup>a</sup>Non-drinker, less than a regular drinker <sup>b</sup>Before or after Vietnam drinks heavily at least once a week, in Vietnam drank almost every day or got drunk once a week <sup>c</sup>Regular drinker, never treated but has one or two symptoms of alcoholism or experienced blackout from drinking <sup>d</sup>A regular drinker treated or hospitalized for alcohol problems, and at least 3 symptoms of alcoholism

Table 4. Alcohol problems after return [23]

		Alcohol problems 1 <sup>st</sup> year after Vietnam (%)
No alcohol problems before or in Vietnam	No heavy narcotics use in Vietnam	7
	Heavy narcotics use in Vietnam – quit on return	12
	Heavy narcotics use in Vietnam – continued use on return	42
Alcohol problems before or in Vietnam	No heavy narcotics use in Vietnam	28
	Heavy narcotics use in Vietnam – quit on return	40
	Heavy narcotics use in Vietnam – continued use on return	45